OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
RESOLVED ISSUES					
1	Uses of "Background" Values	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.2—Background Evaluation, page 13	Resolved	The following are the general uses of "background" in the RI/FS: 1. PRG development 2. Risk characterization 3. Development of Remediation Goals and AOPCs (hill topping replacement values) 4. Criteria for assessing long-term monitoring 5. Evaluation of potential capping material 6. Possibly recontamination evaluation (it was discussed that this may not be properly defined as a background issue). Regarding use of background in risk characterization: On 5/14/08, LWG and EPA confirmed that background risks would be compared to site risks per OSWER Guidance.	
2	Use of Upstream Tissue Data	January 15, 2008 EPA Comments 10 (D), 304	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: EPA agrees that upstream fish tissue data should not be used in background assessments or risk assessment but could be presented in the RI Report for "informational purposes".	
3	Use of Anthropogenic Background	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.2—Background Evaluation, page 13	Resolved	The LWG will develop background values for anthropogenic chemicals in addition to naturally-occurring chemicals for use in risk characterization and development of remediation goals.	
4	Transition Zone Water (TZW) ecological risk assessment	January 15, 2008 EPA Comments 324, 332, 382, 422; p. 39 of EPA's 2/15/08 ecological problem formulation	Resolved	The LWG and EPA managers and BERA leads have verbally agreed that the LWG will screen TZW concentrations against ecoSLs, then talk about the pore water ventilation fraction in the uncertainty section.	Issue number 4 - The language presented in the table does not match EPA's understanding. Consistent with the problem formulation, EPA requires evaluation of TZW relative to water TRVs in the BERA. This is more than a screening step as described here. Evaluation of TZW relative to water TRVs is considered a line of evidence for the BERA for which a hazard quotient should be calculated. EPA agrees that the pore water ventilation fraction may be addressed in the uncertainty section.
5	Presentation of Uncertainty Analyses	January 15, 2008 EPA comments include 3, 287, 288, 289, and 291	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: Uncertainty and assumptions used will be discussed in a factual manner throughout the BERA and HHRA consistent with EPA RAGS A guidance. The reports will be organized to address uncertainties at the end of a report section rather than in an uncertainty section at the end of the report. For example, the uncertainty in the effects assessment will be presented at the end of effects assessment section. Judgmental and qualifying language will not be used in the uncertainty discussions.	
6	Evaluation of a future erosion scenario in the BERA (benthic risk)	January 15, 2008 EPA Comment 259	Resolved	The LWG and EPA managers and BERA leads verbally agreed that an erosion event scenario will be included in the BERA, looking only at short-term duration exposures, especially direct toxicity risk to benthic invertebrates. The LWG and EPA managers and BERA leads also verbally agreed that PRGs will be compared to concentrations in buried sediments in the FS, as needed to evaluate potential remedies. On April 30, EPA and LWG agreed that if modeled post-erosion surface sediment concentrations are not significantly different from current concentrations then evaluation of the future erosion scenario may not be required for the BERA.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
7	Initial and refined eco risk screening steps	January 15, 2008 EPA Comment 368 and February 15, 2008 BERA Problem Formulation	Resolved*	The LWG and EPA managers and BERA leads verbally agreed that the LWG will implement the initial and refined screening steps with modifications that were documented in a flow diagram provided to EPA's BERA lead on 4/14/08. On 5/14/08, EPA and LWG agreed that EPA would modify the flowchart and provide to LWG. Since the LWG never received the revised flowchart from EPA, the LWG has proceeded with developing the BERA using the changes provided to EPA's BERA lead on 4/14/08.	Issue number 7 - The LWG should confirm that the refined screen for the evaluation of effects on the benthic community will be based on a point by point comparison and not the 95% UCL of the site-wide average. This is consistent with the problem formulation for the ecological risk assessment. Any estimation of exposure point concentrations (EPCs) in the refined screen must match the scale of the receptor.
9	Evaluation of surface water as a drinking water source	January 15, 2008 EPA Comments 247, 248 (D), 249, 251 (D), and 253 (D)	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: The LWG will perform the work directed by these comments. EPA agrees that the LWG and its members have preserved the right to object to future identification of MCLs as ARARs for Portland Harbor surface water or to remedy decisions based upon surface water drinking water exposures. On 4/30/08, EPA and LWG agreed that only the vertically integrated and transect samples will be included in the dataset for this evaluation. Maximum detected concentrations will be screened against MCLs and Region 6 screening levels. For chemicals that screen in, EPCs will be calculated for individual transects and individual vertically integrated sample locations. Temporal averages will be included in the EPCs. Site-wide EPCs will also be calculated. Total data will be used. XAD column and filter data will be summed. RME and CT EPCs will be calculated using the same approach as biota (e.g., 5 or more samples are needed to calculate a 95% UCL). Note: EPA and LWG HHRA leads agreed to use the EPA Regional Screening Levels, which replaced the Region 6 screening levels.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
10	Evaluation of surface water for potential bioaccumulation	January 15, 2008 EPA Comments 247, 248 (D), 249, 253 (D), 310, 313 (D), and 315	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: The LWG will screen surface water data against WQC based on an ingestion rate of 17.5 g/day and 175 g/day. Surface water data should be evaluated in conjunction with co-located biota data in the baseline risk assessment. The LWG and EPA will continue to discuss the role of AWQCs in PRG development or as ARARs, and EPA agrees that the LWG and its members retain their ability to object to future use of AWQCs for either of these purposes. LWG recognizes that additional technical resolution is required to fully resolve this issue but has not identified any other elements that warrant dispute. On 4/30/08, EPA and LWG agreed that all surface water will be screened against WQC based on fish ingestion rates of 17.5 g/day and 175 g/day. The maximum detected concentration will be used in the screen. For those chemicals that screen in, the 95% UCL for the site-wide, temporal average also will be calculated. The 95% UCL also will be screened against WQC based on fish ingestion rates of 17.5 g/day and 175 g/day. Chemicals that screen in for either analysis will be compared with the tissue chemicals of concern (COCs) at the end of the HHRA. The tissue COCs will be considered the primary line of evidence (LOE). Chemicals not identified as COCs based on the tissue LOE will be evaluated on a chemical specific basis to determine whether the chemical should be identified as a COC. Co-located surface water and tissue data will be compared in the RI.	
11	Evaluation of TZW as a source to surface water used for drinking water	January 15, 2008 EPA Comments 253 (D) and 32	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: The LWG will present this comparison in Section 6 as required by EPA. The LWG will also estimate the average surface water concentrations associated with transition zone water discharges through loading calculations. The estimated surface water concentrations will be compared with MCLs and Region 6 Tap Water PRGs. EPA agrees that the LWG and its members have preserved their ability to object to addressing this risk pathway in any manner in the evaluation of remedial alternatives. Note: EPA and LWG HHRA leads agreed to use the EPA Regional Screening Levels, which replaced the Region 6 screening levels.	Issue number 11 - Based on the language presented in the table, it is unclear whether the LWG will be screening TZW against EPA Region 6 tap water PRGs (Regional Screening Levels) and MCLs. The LWG should confirm that TZW should be screened against tap water PRGs and MCLs.
12	Evaluation of TZW as a source to biota	January 15, 2008 EPA Comments 253 (D), 321, 322, 323, and 324 (D)	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: EPA agrees the evaluation of TZW as a source of contaminants in biota is no longer required in the HHRA. The HHRA will rely primarily on clam and crayfish tissue data for the purpose of evaluating this exposure pathway. EPA may in the future require the presentation of TZW data relative to human health fish consumption AWQC for the purpose of evaluating the contribution of contaminated groundwater to biota tissue.	Issue number 12 - The language presented in the table does not match EPA's understanding. EPA did not agree that the evaluation of TZW as a source of contaminants in biota is no longer required. EPA agreed to rely primarily on tissue data for the evaluation of human health risks in the HHRA. However, EPA also requires the evaluation of TZW relative to fish consumption AWQC as a line of evidence in the HHRA and for the purpose of evaluating the contribution of TZW to biota tissue.
13	Evaluation of subsurface sediment in HHRA	January 15, 2008 EPA Comment 259	Resolved	On 4/30/08, EPA and LWG agreed that subsurface sediment will not be evaluated in the HHRA due to the short term nature of erosion events.	
14	Nature and Extent Section Detail	January 15, 2008 EPA Comment EPA Cover Letter page 5 and Comment No. 1 (General Comment)	Resolved	EPA and LWG agree in general that the Nature and Extent section of the RI Report should be streamlined and focus on maps, charts, and tables.	
15	SLV or site specific PRG screens for mapped sediment and tissue data presentations for RI Nature and Extent.	January 15, 2008 EPA Comment EPA Cover Letter page 4, Comments 181, 186	Resolved	Issue resolved for Draft RI report. The use of site-specific benchmarks in data presentations may be revisited for the final RI report.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
17	Atmospheric Deposition	January 15, 2008 EPA Comments 47 (D), 102, 241 (D)	Resolved	The LWG will do a literature-based evaluation of the effects of "background" atmospheric deposition on stormwater and upstream inputs, but no new data will be collected. This qualitative evaluation will focus on local data to the extent possible.	
18	Loading assessment for Permitted Discharges	January 15, 2008 EPA Comments 224, 226	Resolved	The LWG will develop permitted discharge loading estimates based on individual NPDES permits and 1500 and 1300 J permits. The LWG also will collect the corresponding permit applications to look for any additional information on chemicals in the discharge.	
19	Anthropogenic Sediment Physical Transport Processes	Issue discussed in meetings but not specifically raised in EPA January 15, 2008 Comment Letter	Resolved	The LWG will include a qualitative/areal discussion in the fate and transport section of maintenance dredging and prop wash potential in known areas of concern for such factors, such as berths and docks. Sediment quality in subsurface horizons will be evaluated in these areas as potential exposed surfaces (analogous to the erosion area analysis to be based on the EFDC model output).	
20	Consideration of background metals in TZW (eco risk characterization)	January 15, 2008 EPA Comments 243, 382 (D), 385 (D)	Resolved	Metals in TZW will not be screened out of the BERA on the basis of background. The LWG will include additional discussion of geochemical controls on metals in pore water in the risk characterization section of the BERA. Relevant literature information on naturally occurring levels of As, Ba, and Mn in low-redox sediment pore water will also be presented. This discussion will acknowledge the limitations of the available pore water and upland groundwater data set and the resulting uncertainties in determining the source of these metals in a manner consistent with other parts of the BERA of comparable importance from an ecological risk perspective.	
21	Use of unfiltered TZW results in risk assessments	January 15, 2008 EPA Comments 265, 319 (D), 325 (D), 354, 382 (D), and 469	Resolved	EPA agreed during the 4/23/08 meeting on BERA Problem Formulation that total metals concentrations will not be screened against dissolved metals criteria.	
22	Study Area Boundary	January 15, 2008 EPA Comments 5, 65, 184, 186, 187, and 189	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: EPA and the LWG agree to expand the Study Area to River Mile (RM) 11.8 and to consider downstream extension of the Study Area to RM 1 and into Multnomah Channel pending assessment of the R3B sediment data and other appropriate data. On 6/11/08 EPA and LWG agreed that the site-wide risk scenarios would be developed for the Study Area from RM 2 to RM 11.8 and that separate EPCs and baseline risk evaluations would be prepared for the areas between RM1 and RM2, upper Multnomah Channel, and RM 11.8 to RM 12.2.	Issue number 22: The LWG should clarify which data falls into which data set (e.g., site wide vs. RM 1 - 2). A table listing samples to be included in the RM 1 - 2, upper Multnomah Channel and RM 11.8 - 12.2 data sets should be provided.
23	Evaluation of riparian soils – terrestrial receptors	January 15, 2008 EPA Comment 190	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: EPA confirms that assessing risk to upland terrestrial receptors refers to the DEQ process, not the work of the LWG.	
24	Tap water PRGs as potential ARARs	March 20, 2008 EPA comments on Sec. 10, p. 4, last bullet	Resolved	Language from 4/30/08 RI/RA Issue Resolution Table: PRGs can come from multiple sources, even non promulgated guidance, Region 6 Tap water PRGs are not ARARs. Regional Screening Level values are also not ARARs.	
25	Background Estimation - Statistical Methods	January 15, 2008 EPA Comments 191 (D), 192 (D)	Resolved	On 9/19/08 EPA provided additional comments on the development of background values for bedded sediment. The LWG agrees that it will **not** transform non-normal data to normal distributions before performing outlier tests.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
26	Background Data Set	January 15, 2008 EPA Comment 213 (D)	Resolved	On 9/19/08 EPA provided comments on the development of background values for bedded sediment. The LWG will develop background values in accordance with the comments provided by EPA on 9/19/08. The LWG will also develop, and present in the RI Report, a second set of background sediment values developed without excluding certain statistical outliers from the dataset, unless EPA provides credible evidence that the outliers are indeed affected by specific CERCLA-like source(s).	Issue number 26: The LWG state that background concentrations will be estimated as directed by EPA on 9/19/2009. However, the table also states that a second set of background values will be developed without exclusion of statistical outliers unless EPA provides credible evidence that the outliers are affected by specific CERCLA-like sources(s). The LWG should clarify how this second set of background values will be presented and what is meant by "EPA provides credible evidence." Please note that EPA and DEQ agreed to investigate potential sources in the vicinity of statistical outlier clusters.,
29	Tissue TRV methodology	February 15, 2008 BERA Problem Formulation states that "EPA is in the process of reviewing the TRVs used in the Round 2 Report, and will subsequently provide direction for TRVs to be used in the BERA."	Resolved*	On 8/5/08 EPA provided a revised tissue TRV methodology addressing LWG comments. Although the LWG still has some concerns regarding the methodology, the LWG agreed that EPA should proceed with developing the tissue TRVs and commented on specific TRV as they were developed.	Issue number 29: TRVs are resolved per LWG letter dated March 5, 2009.
30	Other TRVs	February 15, 2008 BERA Problem Formulation states that "EPA is in the process of reviewing the TRVs used in the Round 2 Report, and will subsequently provide direction for TRVs to be used in the BERA."	Resolved	The LWG provided revised benthic tissue TRV tables for Cd, Cu and DDD to Burt Shephard on 11/26/2008 and a revised Benthic TRV table for PCBs was provided to Burt on 12/1/2008; EPA has not yet responded to these revised tables. Fish tissue-residue TRV reconciliation tables were submitted to EPA on 11/20/2008, EPA responded to the reconciliation tables on 12/22/2008. EPA and LWG disagree on inclusion of certain sac-fry studies where eggs were collected from the Great Lakes in the 1970s and the inclusion of certain behavioral studies that the LWG believes are not appropriately related to survival, growth, or reproduction. LWG and EPA met 1/9/09 to discuss outstanding differences on fish tissue TRVs. As action items from the 1/9/09 meeting the LWG agreed to summarize its reevaluation of behavioral studies and our arguments for excluding the 1970's Great Lakes sac fry studies (Berlin et al. (1981) and Broyles & Noveck (1979)). The results of that work were provided to EPA on 1/14/09, followed by an e-mail communication from J. Toll to B. Shephard on 1/21/09 and a phone call from J.Toll to E. Blischke on 1/22/09. EPA directed the LWG on the resolution of the behavioral endpoint and 1970s Great Lakes sac fry issues on 1/23/09. LWG responded to EPA's directive in a letter dated February 6, 2009.	
31	Use of the FPM to set SQVs	Verbal proposal from Burt Shephard to John Toll on April 30, 2008	Resolved*	LWG agreed to attempt to use DEQ's recently available updated version of the FPM to develop benthic PRGs assuming that the updated model is reliable and functional. EPA's BERA lead has defined FPM SQVs as "sediment concentrations that minimize false positive and false negative error rates" in the FPM. The LWG's BERA lead agrees with this definition, but stresses that best professional judgment (BPJ) is required to determine the "sediment concentrations that minimize false positive and false negative error rates" because the FPM is multivariate. The EPA and LWG BERA leads have agreed to this pending review of the new version of the FPM to understand how it handles the BPJ step.	Issue number 31: Use of FPM to set SQVs: There are number of questions about application of the FPM which are not completely resolved. These include which COIs are to be modeled, acceptability parameters and how best professional judgement will be applied. It may be useful to schedule a check-in on the application of the predictive models to facilitate agency review of the Portland Harbor RI and BRA.

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
32	Use of negative control comparisons and the biomass endpoint	December 2007 Hyalella growth meeting with agency team and national experts	Resolved	LWG and EPA agree to follow the approaches for a reference envelope and the Hyalella growth endpoint as provided by MacDonald and Landrum in their September 2008 "Evaluation of the Approach for Assessing Risks to the Benthic Invertebrate Community at the Portland Harbor Superfund Site" with some modifications to the reference station selection criteria as documented in the LWG's 11/14/08 Memo on Criteria for Identifying Reference Sediment Samples (see 11/21/08 email approval of the memo by E. Blischke).	
33	Criteria for interpreting bioassay data	February 15, 2008 BERA Problem Formulation proposed 10-20-30% criteria	Resolved	LWG and EPA agree to follow the approach for interpreting bioassay data that is provided by MacDonald and Landrum in their September 2008 "Evaluation of the Approach for Assessing Risks to the Benthic Invertebrate Community at the Portland Harbor Superfund Site" (i.e., interpret each of the four bioassay endpoints separately, use the reference envelope and narrative intent to define high and low level hit thresholds).	
34	Evaluation of Pacific Lamprey at the individual level	2/15/08 EPA Problem Formulation for the BERA page 26 fn. 2	Resolved	Following EPA's 5/19/2008 direction to evaluate Pacific Lamprey at the organism level, the LWG and EPA agreed to evaluate Pacific Lamprey at the organism level following the approach outlined in EPA's 7/1/08 letter and attachment.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
35	BERA revised problem formulation	2/15/08 EPA Problem Formulation for the BERA	Resolved	On 5/14/08, EPA and LWG agreed that the LWG will draft the revised problem formulation (using redline/strikeout tracking). Language from 4/30/08 RI/RA Issue Resolution Table: The LWG will perform the work directed in the revised BERA problem formulation as agreed to by EPA and the LWG (to be prepared in early summer 2008) and will also provide additional analysis and evaluation as appropriate for a baseline risk assessment.	
36	"Forward" (dose) versus "backward" (ATC) exposure calculations	February 15, 2008 Problem Formulation called for the LWG to use ATC for some receptors, forward risk calculations for others.	Resolved	On 5/14/08, EPA and LWG agreed that the LWG will use "backward" exposure calculations for dose-based risk assessment for all wildlife receptors. On 5/21/08 the LWG provided EPA with a written demonstration of how the "backward" ATC approach would be used for receptors with a significant sediment ingestion rate.	
37	Evaluation of biota consumption in the HHRA	January 15, 2008 EPA Comments 247, 248 (D), 249, and 252 (D)	Resolved	On 5/14/08, EPA and LWG agreed that the LWG will calculate bass EPCs using 1-mile segments combining both sides of the river. The location of the bass exposure segments will be determined cooperatively by the LWG and EPA. A discussion of variations in bass tissue concentrations on opposite sides of the river within a given segment will be included in the uncertainty section of the HHRA. In calculating the EPCs, 95 percent upper confidence limits on the mean (95% UCLs) will be calculated for datasets with 5 or more samples using the latest version of Pro UCL. Non-detects (NDs) will be incorporated per the latest Pro UCL guidance (i.e., using the full detection limit with a non-detect flag). The 95% UCL will be used as the RME EPC. EPCs that are calculated using fewer than 10 samples will be identified and discussed in the uncertainty section. Where fewer than 5 samples are available or if Pro UCL is unable to calculate a 95% UCL, the maximum concentration for the dataset will be used as the RME EPC. The arithmetic average, regardless of dataset size, will be used as the CT EPC. Language from 4/30/08 RI/RA Issue Resolution Table: EPA and the LWG agree to include this scenario in the HHRA using 1-mile segments for calculating EPCs pending agreement on details of the assessment. As with other ecological and human health risk scenarios, LWG understands this agreement does not waive our right to dispute how the risk assessment is used to evaluate remedial alternatives.	
38	Diver scenario, breast milk scenario, data use issues, and figures for the HHRA	January 15, 2008 EPA Comments 254 (D), 255, and 363 - 367	Resolved	On 5/15/08, EPA and LWG agreed that the breast milk feeding scenario would not be included in the HHRA at this time. On 9/25/08 the LWG agreed to include the diver scenario as directed by EPA on 9/15/08.	Issue number 38: EPA agreed to not include the breast feeding scenario in the draft HHRA. Pending resolution of this scenario, it will be included in the final HHRA.
40	Lines of Evidence (LOE), PRGs, and RGs Progression	March 20, 2008 EPA Comment Letter on R2 Report Section 10: General Comments, page 1, bullets 1-5	Resolved	The LWG submitted draft definitions of these FS terms to EPA on 5/30/08. Based on ongoing discussions in meetings between EPA and LWG, the concept of refining PRGs throughout the FS process and presentation of RGs in the FS appears acceptable to both the LWG and EPA.	
45	Development of AOPCs	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.2—iAOPCs, pages 6 and 7; and Section 10.4—Summary of Potential Risk Areas, page 14	Resolved*	The LWG will develop a GIS mapping tool for EPA to prepare PRG screening maps separately from the LWG's FS development process. The GIS mapping tool will be demonstrated to EPA in February 2009. The LWG presented an approach for PRG and AOPC development to EPA on 9/8/08, EPA has verbally indicated that the LWG's proposed approach is generally acceptable.	Issue number 45: Development of AOPCs will proceed as planned culminating with AOPC check-in on May 27 and 28.
46	Indicator Chemicals to be mapped in the RI Nature and Extent Section	January 15, 2008 EPA Comment 180 (D)	Resolved	LWG and EPA have agreed on the list of indicator chemicals (see 7/21/08 email from E. Blischke to LWG)	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
47	Analyte List for Loading, Fate and Transport in the RI	Issue discussed in meetings but not specifically raised in EPA January 15, 2008 Comment Letter	Resolved	LWG and EPA have agreed on the list of indicator chemicals (see 7/21/08 email from E. Blischke to LWG)	
48	Site-Wide CSM Analyte List	Issue discussed in meetings but not specifically raised in EPA January 15, 2008 Comment Letter	Resolved	LWG and EPA have agreed on the list of indicator chemicals (see 7/21/08 email from E. Blischke to LWG)	
49	Subsurface Sediment Contamination – Loading to Surface Sediment	January 15, 2008 EPA Comments 222, 259	Resolved	The LWG submitted a proposed approach for estimating subsurface sediment to surface sediment loading to EPA on 6/21/08. EPA comments on the approach were provided on 8/12/08. An LWG response to EPA's comments was provided on 9/18/08; however this issue is considered resolved.	
50	Contaminant fate and transport - Chemical Degradation Rates	January 15, 2008 EPA Comment 230 (D)	Resolved	The LWG submitted a table of degradation rates to EPA on 7/24/08. EPA comments on the degradation rates were received on 9/23/08. On 9/26/08 EPA and LWG agreed to use a range of rates for PCBs and DDX ranging from nearly infinity to the medium to slow table values provided by LWG.	Issue number 50: The LWG should clarify that after the range is evaluated, the best performing degradation rate will be used.
51	Scale of Discussion/Presentation for RI Report Section 10 (CSM)	Issue discussed in meetings but not specifically raised in EPA January 15, 2008 Comment Letter	Resolved	The LWG has developed a more-detailed plan for presentation of information/observations in this section of the RI. An annotated outline of the CSM section of the RI Report was submitted to EPA for review of 11/21/08. EPA and LWG met on 12/9/2008 and again by phone on 01/20/2009 (E. Blischke and G. Revelas) to discuss EPA comments on the CSM approach and reached general agreement on the presentation format. One issue of particular concern to EPA was the presentation and discussion of upland site source information. It was agreed that a thorough consideration of upland source information presented in Section 4 of the RI (Sources) will be included in, and is key to, the CSM Section, but no attempt will be made to quantitatively rank known or potential sources of COIs.	Issue number 51: There appears to be agreement regarding the need to consider upland sources of contamination in the CSM (connect the dots). During the February 11, 2009 management meeting, it was agreed that a strict screening of upland data will not be performed but that a semi-quantitative evaluation of the magnitude of upland contamination will be presented in the RI and that a quantitative evaluation would be performed in the FS.
53	Use of deep TZW results in the RI and BLRA	January 15, 2008 EPA Comments 253 (D), 264, 319 (D), and 382 (D)	Resolved	On 5/14/08, EPA and LWG agreed that LWG would screen deep TZW results in the RI to assess potential TZW loading impacts to surface water and surface sediment but would not include deep TZW results in development of EPCs for the baseline risk assessments.	
54	Application of AWQC to calculated TZW concentrations in areas of the river outside plume discharge areas	Issue raised by EPA at April 16 and 17 meetings.	Resolved	On 5/14/08, EPA and LWG agreed that LWG would not need to estimate TZW concentrations in areas of the river outside plume discharge areas and compare the estimated values to AWQC.	
57	Upstream data set for surface water	Issue raised by EPA at May 1 meeting.	Resolved	At 5/29/08 meeting, the LWG and EPA agreed on the process to estimate background surface water values.	Issue number 57: The language in the table does not provide sufficient detail regarding which samples will be included in the background surface water data set. The LWG should clarify that the agreement was to use data from RM 16 and consider data from RM 11 (not including east side) in the evaluation of upstream surface water concentrations.
55	Data reduction rules	Issue raised by EPA at May 1 meeting.	Resolved	On 8/12/08 EPA verbally indicated that the LWG should proceed with the RI using the data reduction rules for the RI, background, and risk assessments provided to EPA on 6/5/08.	Issue number 55: The LWG should clarify that use of 1/2 the detection limit to represent non-detect values detected at least once applies on a media specific basis.
56	OC-normalization	Issue raised by EPA at May 1 meeting.	Resolved	On 8/12/08 EPA verbally indicated that the LWG should proceed with the RI using the data reduction rules for the RI, background, and risk assessments provided to EPA on 6/5/08.	

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
58	Treatment of outliers identified by ProUCL	Issue raised by EPA at May 1 meeting.	Resolved	On 7/24/08 EPA provided comments on the LWG memo summarizing the development of background values for bedded sediment. The LWG will proceed with developing background values in accordance with the memo and EPA's comments.	
A	Inclusion of stormwater piping information in RI Report	Based on EPA clarification of EPA comment No. 106 on the R2 Report	Resolved	C. Stivers preliminary agreement with C. Humphrey to include piping data available from City GIS. City has contacted EPA to clarify that City stormwater piping information is not complete and will be difficult to compile and organize. 1/26/09 email from C. Humphrey to R. Applegate clarified that LWG would "only show current knowledge of stormline piping and sites connected (i.e., outfall drainage basins) for the large shared conveyance systems in the Harbor" and provide a map showing the various types of drainage to the river. The LWG is currently reviewing EPA's clarification request.	Issue letter A: Pipeshed information: EPA understand that the City of Portland has provided sufficient pipeshed information for this issue to be resolved.
B	Stormwater Load Calculation Methods		Resolved	LWG and EPA agree to develop stormwater load estimates in accordance with the LWG's 11/16/08 Portland Harbor RI/FS Stormwater Loading Calculation Methods, and 9/2/08 Proposed Method for Calculating Basin-weighted Statistics for Stormwater Data Technical Memorandum, as modified by EPA's 11/4/08 approval letter and comments, and as clarified in LWG's 11/19/08 letter.	
C	Draft Baseline Human Health Risk Assessment Report Check-Ins	Issue raised by EPA.	Resolved	LWG and EPA agree that LWG will provide tables of exposure point concentrations, toxicity values, and exposure assumptions for informational purposes once the tables have been through LWG internal review and approval.	
D	Draft Baseline Ecological Risk Assessment Report Check-Ins	Issue raised in 12/8/2008 email from E. Blischke	Resolved	The LWG responded to EPA's request on 12/18/2008. At the 1/14/2009 Portland Harbor Managers meeting, EPA and LWG agreed that the LWG's 12/18/2008 responses to Items 4-8 were acceptable but that the LWG would provide tables of EPCs, modeled tissue concentrations, and dietary doses requested in Items 1-3 for informational purposes once the tables have been through LWG internal review and approval.	
E	Presentation of Groundwater Pathway Assessment and TZW Geochemistry Evaluation in the RI Report (Appendix C)	January 15, 2008 EPA Comments 104, 105, 195, and 211 on the R2 Report, and August 22, 2008 EPA clarification letter	Resolved*	Bill Locke and Christine Hawley held a conference call with E. Blischke and R. Fuentes of EPA on Oct. 14, 2008 in which EPA's concerns were clarified and the possibility of a new appendix to the RI report was initially discussed. The LWG submitted a draft outline for the appendix to EPA on Dec. 23, 2008. EPA's comments on the outline, dated January 23, 2009, did not raise substantive concerns with the form or content of the outline, but requested that the LWG include recently collected nearshore groundwater data from Time Oil, PEO, and OSM in the analysis, as well as TZW and stratigraphy data collected after R2 at GASCO, Siltronic, and Gunderson. The LWG will comply with these requests. However, the LWG disagrees with EPA's statement in the 1/23/09 comments that the RI must address the question: "Does the presence of contaminants in porewater and/or TZW need to be addressed through source control and in-water cleanup activities"? The LWG believes the RI report is not the appropriate context for identifying upland source control cleanup needs.	Issue letter E: Evaluation of TZW in context of in-water remedy and upland source control measures. Point of compliance issues aside, this is really a question of how the FS will consider the effectiveness of source control.

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
UNRESOLVED ISSUES					
8	Issues with applying the WOE framework (i.e., how to account for differences in relative strength of different LOEs, for example, differences in the quality of TRVs should lead to different weights on the TRV LOE for different COPCs)	February 15, 2008 BERA Problem Formulation proposed WOE framework	Unresolved*	The LWG and EPA managers and BERA leads verbally agreed that the LWG's concerns about application of the WOE framework are generally valid, and agreed to schedule a technical meeting to reach a consensus on this issue. The appropriate timing for that meeting has not yet been resolved. The extended delays in "locking down" BERA issues has put the draft BERA on the critical path for completion of the FS, so it has become essential to schedule and conduct this consensus-building process in a manner that minimizes the potential for further delays.	Issue number 8: Application of WOE: This will need to be addressed through the early RI and BRA review and FS scoping steps.
16	Upland Site Summary Issues	January 15, 2008 EPA Comments 122 through 175 on Section 5 Table 5.1-2	Unresolved	On 7/25/08 the LWG submitted responses to EPA comments on Table 5.1-2. EPA comments on the table received 11/4/08 requested substantial additional information and analysis be presented in the table. The LWG believes in many cases that the requested information is DEQ's responsibility and that there is not enough time in the RI to complete requested analyses. LWG submitted a response on 12/17/2008 to EPA's general comments received on 11/4/2008 and is currently evaluating EPA's specific comments. EPA provided a response on 1/21/2009 to the LWG's 12/17/2008 responses reiterating the need for the additional analysis of upland facilities.	Issue number 16: Upland Site Summary Issues: This issue is resolved per EPA email dated 3/9/2009
27	Hilltopping Replacement Values in AOPC Development	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.2.1—Site-wide Scale Method, page 7	Unresolved	LWG and EPA will further discuss specific approaches during the AOPC check-in currently planned for late May 2009.	Issue number 27: Hilltopping Replacement Values: AOPC Check-in. Use of GIS tool will allow a range of values to be considered (e.g., background, baseline, sediment trap results, upper study area bedded sediments, etc.)
28	Harbor "Baseline" Values	Issue raised by EPA at 3/12/08 meeting	Unresolved	LWG and EPA will further discuss specific approaches during the the AOPC check-in currently planned for late May 2009.	
39	Schedule and PRGs	Second to last paragraph in March 20, 2008 EPA Comment Letter on R2 Report Section 10	Unresolved*	LWG and EPA have agreed on a list of chemicals and receptors for early PRG development (see 7/24/08 *EPA Confirmation of PRG Agreements in Principle*). The complete PRG/FS schedule is not yet finalized, however "early" PRGs are still anticipated to be submitted to EPA in March 2009.	Issue number 39: Schedule and PRGs: EPA acknowledges that the overall project schedule is still under discussion. However, EPA understands that the schedule presented in the most recent FS Milestone table remains valid.
41	Sediment – Benthic Toxicity PRGs	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.1—iPRGs, page 3, Benthic Risk bullets; Section 10.1.3.1—Ecological iPRGs, page 11	Unresolved	LWG and EPA will further discuss specific approaches during the AOPC check-in currently planned for late May 2009.	Issue number 41 - Benthic Toxicity PRGs: This will be addressed through the scheduled AOPC Check-in. Feeds into the WOE evaluation.
42	Sediment – Fish and Shellfish SWAC Goals and Hill Top Values	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.2.1—Site-wide Scale Method, page 7	Unresolved	LWG and EPA will further discuss specific approaches during the AOPC check-in currently planned for late May 2009.	Issue number 42: Fish and Shellfish SWAC goals and hilltop values: This will be addressed through the scheduled AOPC Check-in.
43	Surface Water PRGs	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.1.1—Approach for Surface Water, page 4	Unresolved	No resolution except on human health incidental ingestion and ecological direct toxicity AWQC based PRGs. LWG and EPA will further discuss PRG development issues; meetings are planned for first quarter 2009.	Issue number 43: Surface Water PRGs: This will be addressed through the RAO and ARAR POC discussion.
44	Transition Zone Water PRGs	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.1.2—Approach for TZW, page 5	Unresolved	LWG and EPA will further discuss PRG development issues; meetings are planned for first quarter 2009.	Issue number 44: TZW PRGs: This will be addressed through the RAO and ARAR POC discussion.

OUTSTANDING PORTLAND HARBOR RI/FS ISSUES
STATUS AS OF 4/15/2009

	Issue	EPA Comment Reference to Issue[a]	Resolution Status	Resolution Process	3/17/09 EPA RESPONSE (Blanks indicate EPA agrees with Resolution Process)
52	Use of AWQC as PRGs and/or ARARs for TZW	March 20, 2008 EPA Comment Letter on R2 Report Section 10: Section 10.1.1.1.2—Approach for TZW, page 5 April 16, 2008 EPA revised PRG framework table	Unresolved	LWG and EPA will further discuss this issue; meetings are planned for first quarter 2009.	Issue number 52: AWQC as PRGs and/or ARARs: This will be addressed through the RAO and ARAR POC discussion.
59	Comparison of background distributions to site distributions for PRGs	Issue raised by LWG at May 1 meeting.	Unresolved	LWG and EPA will further discuss specific approaches during the AOPC check-in currently planned for late May 2009.	Issue number 59: Comparison of background distributions: This will be addressed through the scheduled AOPC Check-in.

[a] - Comment number followed by (D) indicates that the EPA comment was directive.

* - Issue is resolved at the concept level but details still need to be worked out.

Note that the issue numbering has been retained from the 5/13/2008 version of the table to allow easier comparison to that previous version.

4/15/09 LWG RESPONSE TO EPA
The LWG will compare shallow TZW concentrations to surface water TRVs and identify exceedances in the BERA. Pore water ventilation fraction will be addressed in the uncertainty section.

4/15/09 LWG RESPONSE TO EPA
The LWG is using the maximum detected concentration in the refined screen. The refined screening calculation is done only on the maximum detected concentration and not repeated for every data point. This is consistent with the problem formulation and appropriate for COPC identification. The analysis of COPCs is done point-by-point in the benthic BERA.

4/15/09 LWG RESPONSE TO EPA
TZW will be screened against the EPA Regional Screening Levels for tap water and MCLs.
An evaluation of co-located TZW, sediment, and shellfish (i.e., clams and crayfish) tissue data relative to fish consumption AWQC will be included in the HHRA.

4/15/09 LWG RESPONSE TO EPA
This table will be provided in the RI.

4/15/09 LWG RESPONSE TO EPA
In the cases of the two chemical groups — total PCB Aroclors and total DDx — for which EPA and LWG reached different conclusions on the disposition of potential outliers in specific locations, the draft RI will present background estimates both with (LWG case) and without (EPA case) these potential outliers retained in the data set. The estimates presented for the two cases will be clearly identified in the RI Report as "EPA Case" and "LWG Case". By "credible evidence," the LWG means simply that if EPA and DEQ's efforts to investigate potential sources yield information indicating the likelihood of CERCLA-like, point sources of total PCBs or DDx in the vicinity of the potential outliers in question, then the LWG would agree that it is appropriate to exclude these data from the background evaluation.
The LWG is eager to share it's work on the FPM, and other aspects of benthic toxicity modeling, with the agency team. We understand the complexity of the benthic modeling issues and the need for dialogue to facilitate adequate and timely EPA technical review. Benthic interpretation discussions between the LWG and EPA went on until late November, 2008. Since that time the LWG has been working diligently to build the models and is working very hard to finish the first internal review draft of the benthic BERA in April. The next opportunity for a check-in will be when the LWG has completed it's review of the benthic BERA. The scheduled completion date for the LWG's review is mid July 2009.

4/15/09 LWG RESPONSE TO EPA

4/15/09 LWG RESPONSE TO EPA
Agreed
Agreed

4/15/09 LWG RESPONSE TO EPA
The best performing degradation rate will be used that is consistent with other calibration parameter values, if other parameters are used.
The RI will catalogue known or potential upland sources of COIs on a qualitative basis in Section 4 (sources) and then "connect the dots" with the in-water data in Section 10 (CSM). However, this RI evaluation will be a qualitative evaluation of the upland contamination due to the difficulties involved in screening that data or converting it into quantitative or semi-quantitative magnitude estimates. We are not aware of an agreement to conduct a quantitative evaluation in the FS. The same difficulties with doing a quantitative evaluation for the RI also exist for the FS. The LWG agrees to perform a more focused and detailed evaluation of sources on an AOPC-specific basis in the FS.
The LWG's understanding of the process agreed to on 5/29/08 was to evaluate RM 11 data (including RM 11 east data) in conjunction with RM 16 data on a chemical-by-chemical basis and remove RM 11 data points that are notably higher in concentrations than the other RM 11 or RM 16 values; these elevated values will be excluded from the upstream background data set.
In calculating sums for the RAs, half the detection limit will be used to represent non-detect values detected at least once on a media specific basis. In the case of biota for the HHRA, presence/absence is assessed separately for each individual species and tissue type.

4/15/09 LWG RESPONSE TO EPA
Agreed. This issue is resolved.
We request clarification of the response. Per recent RAOs meeting discussions, it is the LWG position that the FS will evaluate the source levels that are expected to cause recontamination issues, but cannot evaluate the effectiveness of potential or proposed source controls.

4/15/09 LWG RESPONSE TO EPA
The LWG understands the need for dialogue on the WOE framework to facilitate adequate and timely EPA technical review and has agreed to a check-in on this topic. This is predominately a benthic interpretation issue. Benthic interpretation discussions between the LWG and EPA went on until late November, 2008. Since that time the LWG has been working very hard to finish the first internal review draft of the BERA in April. The next opportunity for a check-in will be when the LWG has completed its review. The LWG's review is scheduled to be completed in mid July 2009.
Agreed
Agreed
Agreed
Agreed
Agreed
Agreed
Agreed

4/15/09 LWG RESPONSE TO EPA
Agreed
Agreed